

Structural Firefighting, Thermal Stress and Return to Work

Gorey, Richard J; Pope, Rodney R; Orr, Rob Marc

Licence:
CC BY-NC-ND

[Link to output in Bond University research repository.](#)

Recommended citation(APA):

Gorey, R. J., Pope, R. R., & Orr, R. M. (2017). *Structural Firefighting, Thermal Stress and Return to Work*. APA National Physiotherapy Conference MOMENTUM 2017, Sydney, New South Wales, Australia.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

For more information, or if you believe that this document breaches copyright, please contact the Bond University research repository coordinator.

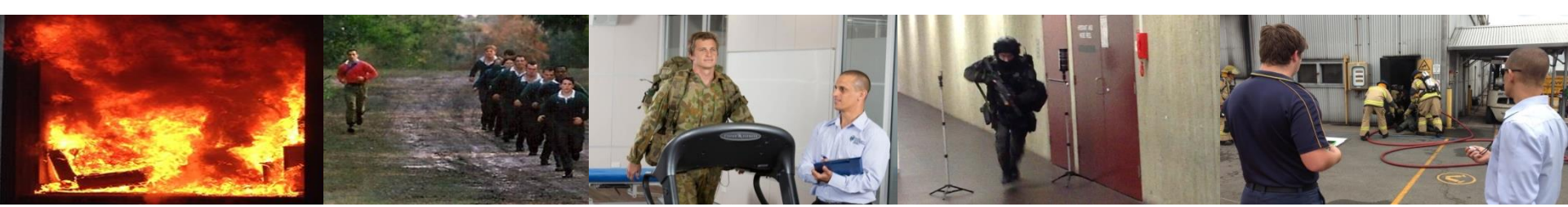
Structural Firefighting, Thermal Stress and Return to work

¹Richard Gorey, ²Rodney Pope, ³Robin Orr

¹ Queensland Fire and Rescue Service

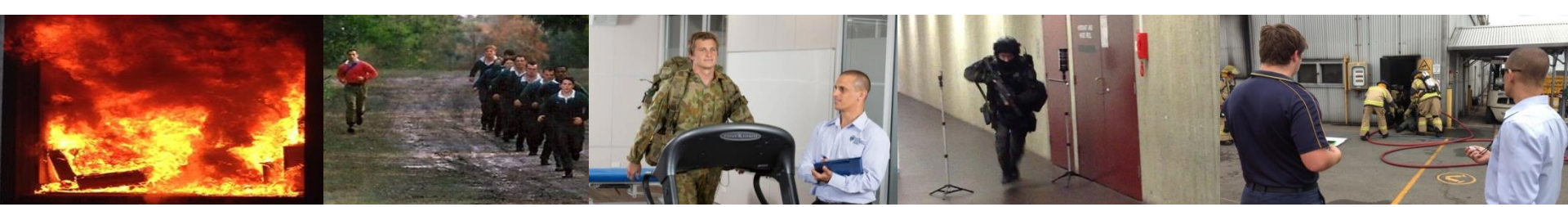
² Tactical Research Unit – South, Charles Sturt University

³ Tactical Research Unit - North, Bond University



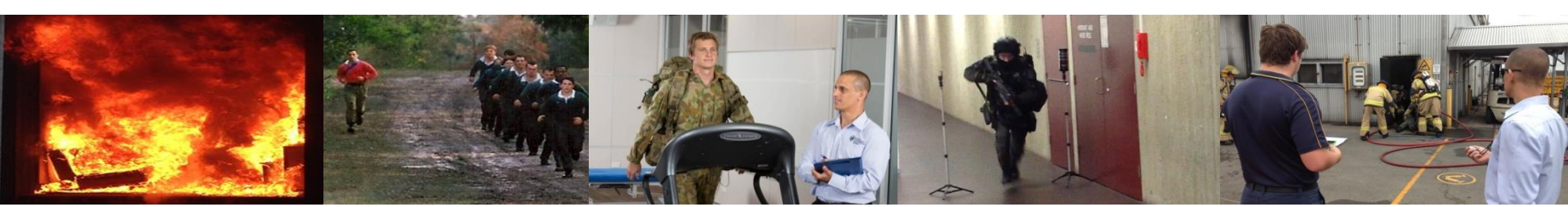
Structural Firefighting, Thermal Stress and Return to Work





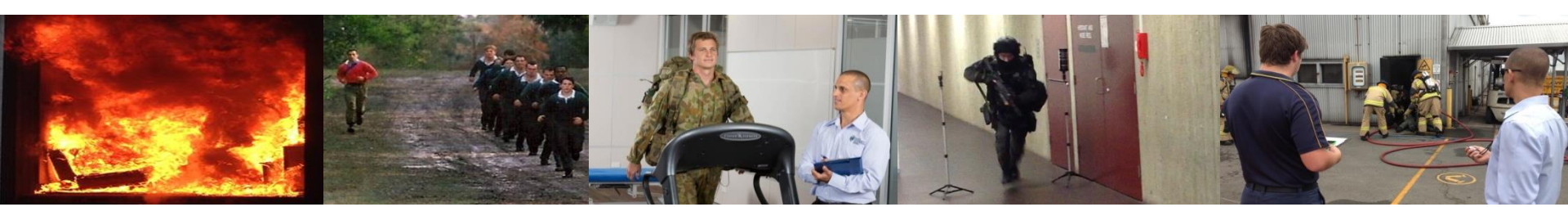
Aim

To investigate the impact of Structural Firefighting on firefighter hydration and core temperatures.



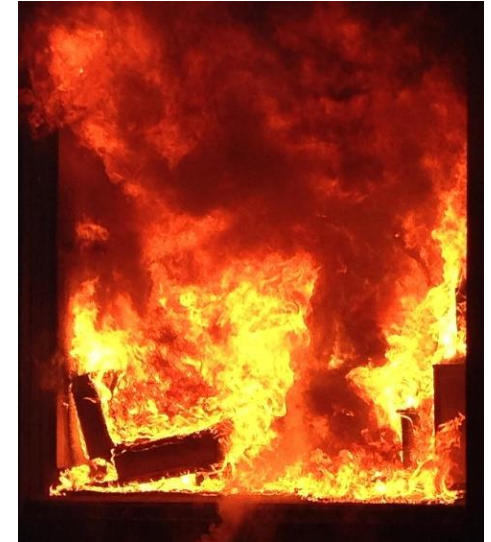
Methods

- 3 Studies over 3 years (1. n=7, 2. n=7, 3. n=22)
- Qualified Firefighters conducting occupational tasks for 15mins in a Live Fire Compartment
- Full firefighting PPC with BA
- Measures: Body weight, USG, Core Temperature
- Ethics approved by Bond University HREC, Protocol Number RO1761



Methods

- Fire temperatures
 - 40.0 °C (max 50.9 °C) at 0.3m above the floor
 - 130-155 °C at 1.1m above the floor
 - 458.3 °C (max 571.5°C) at the ceiling



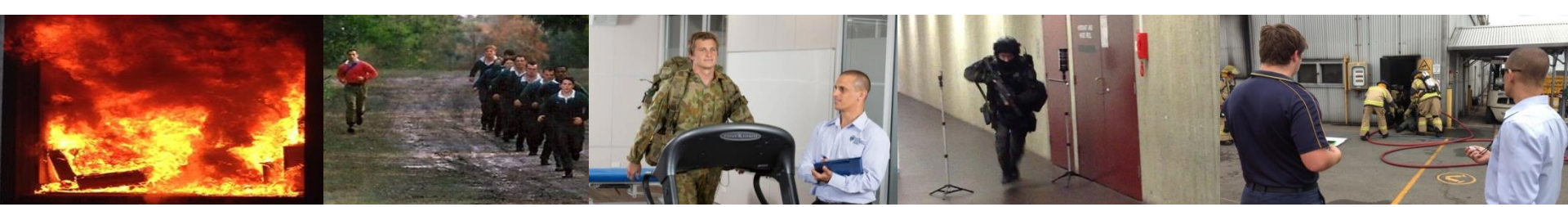


19/02/16

05:42:49

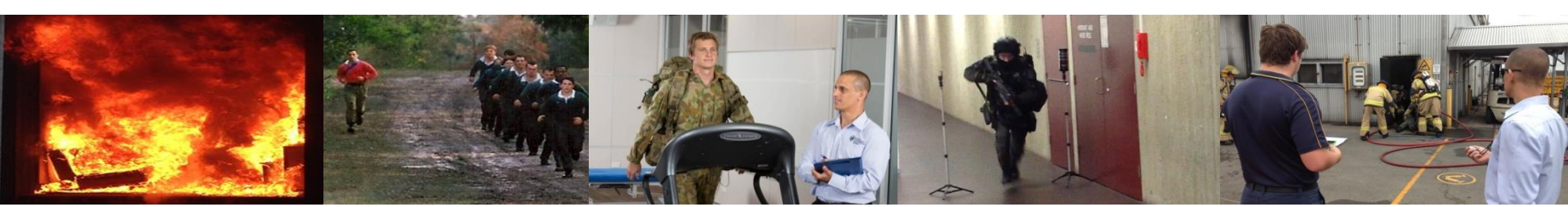
85 °C

OND
UNIVERSITY
CAL RESEARCH UNIT



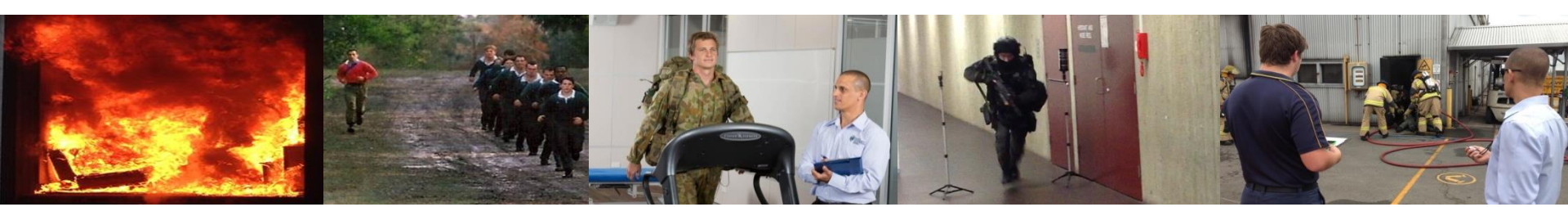
Key Findings

- Some firefighters commenced in a dehydrated state.
- Significant rise in core temperatures (average rise 2.4C)
- Significant decrease in total body weight (average loss 1.2kg)
- No Significant change in USG.



Conclusion

- Notable thermal stress during actual fire suppression tasks
- This can lead to a heightened display of irritability by the participant.



Clinical Implications

- For the rehabilitation physiotherapist understanding workplace demands along with the effects these have on the operator, assists in developing rehabilitation strategies to return firefighters safely to operational status.